Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C

Device Under Test Description	
Manufacturer	JVCKENWOOD Corporation
	JVCKENWOOD USA Corporation
Manufacturer Contact	Donald E. Wingo, 678-474-4719
Product Name	NX-5800, Mobile Subscriber Unit - UHF
Frequency Band	UHF (380 – 470 MHz / 450 – 520 MHz)
Installed Options	P25 Conventional
	P25 Trunking
	P25 DES (multi-keys) encryption
	P25 AES (multi-keys) encryption
Installed Vocoder	Enhanced Full Rate

Test Description
P25-CAB-CAI_TEST_REQ - March 2010, Section 2.1.1.1 - Project 25 Phase 1 Common Air Interface Conventional Subscriber Unit Performance
P25-CAB-CAI_TEST_REQ - March 2010, Section 2.1.1.2 - Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Performance
P25-CAB-CAI_TEST_REQ – March 2010, Section 2.1.3.2 – Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Interoperability.

Laboratory Information	
P25 CAP Laboratory Number	P25CAP081010 (EFJohnson Technologies)
Date(s) of Test	07 November to 21 November 2014
Date of Issue	09 December 2014
P25 CAP Laboratory Number	P25CAP081010 (EFJohnson Technologies)
Date(s) of Test	7 August 2014
Date of Issue	20 August 2014
P25 CAP Laboratory Number	P25CAP081017 (Harris Corporation)
Date(s) of Test	06 November 2014
Date of Issue	10 November 2014
P25 CAP Laboratory Number	P25CAP081011 (Compliance Testing, LLC)
Date(s) of Test	27 May 2015
Date of Issue	02 June 2015

Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C

Laboratory Information	
P25 CAP Laboratory Number	P25CAP081012 (Motorola Solutions Inc.)
Date(s) of Test	28 August 2015
Date of Issue	04 September 2015

Informative References	
Date	**Title**
March 2010	P25-CAB-CAI_TEST_REQ

Other Devices Tested with: JVCKENWOOD NX-5xxx (Model Class*)

Manufacturer	Product Name, Definition, and Unique ID	Installed Options
EFJohnson	ATLAS, P25 Trunking System	Rel 1..1.0-10, TSNI 1.2.0-14
Harris Corp.	VIDA Premier SR10A MASTR V	Firmware R7G13
Codan Radio	Codan MT-4E – Daniels Trunked Radio	V1.1.0.9
Motorola Solutions, Inc.	Motorola Solutions ASTRO 25 System	Rel. 7.15

*JVCKENWOOD Model Class is defined as all subscriber units, mobile and portable, that use common software / firmware and hardware design as related to interoperability testing.

Performance Test Cases and Results

P25-CAB-CAI_TEST_REQ – March 2010, Section 2.1.1.1 – Project 25 Phase 1 Common Air Interface Conventional Subscriber Unit Performance		DTR-P25CAP081010-14120901	
Performance – Conventional Receiver Tests NX-5800 (UHF)			
Test Case	**Description**	**Requirement**	**Results**
2.1.4	Reference Sensitivity	$\leq$ -116 dBm	P1
2.1.5	Faded Reference Sensitivity	$\leq$ -108 dBm	P2
2.1.6	Signal Delay Spread Capability	$\geq$ 50 us	P3
2.1.7	Adjacent Channel Rejection	$\geq$ 60 dB	P4
2.1.8	Co-Channel Rejection	$\leq$ 9 dB	P
2.1.9	Spurious Response Rejection	$\geq$ 80 dB	P
2.1.10	Intermodulation Rejection	$\geq$ 75 dB	P
2.1.11	Signal Displacement Bandwidth	$\geq$ 1000 Hz	P
2.1.17	Late Entry Unsquelch Delay		
	No Talk Group or Encryption	$\leq$ 125 ms	P
	Talk Group Only	$\leq$ 370 ms	P
	Encryption Only	$\leq$ 370 ms	P
	Both (On Clear or Encrypted Channel)	$\leq$ 460 ms	P
2.1.18	Receiver Throughput Delay	$\leq$ 125 ms	P

Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C

P25-CAB-CAI_TEST_REQ – March 2010, Section 2.1.1.1 – Project 25 Phase 1 Common Air Interface Conventional Subscriber Unit Performance		DTR-P25CAP081010-14120901	
Performance – Conventional Transmitter Tests NX-5800 (UHF)			
Test Case	**Description**	**Requirement**	**Results**
2.2.8	Unwanted Emissions: Adjacent Channel Power Ratio	$\geq$ 67 dB	P
2.2.12	Transmitter Power Attack Time	$\leq$ 50 ms	P
	Encoder Attack Time	$\leq$ 100 ms	P
2.2.14	Transmitter Throughput Delay	$\leq$ 125 ms	P
2.2.15	Frequency Deviation for C4FM		
	High Level Signal Deviation	$2544 \leq f_{dev} \leq 3111$ Hz	P
	Low Level Signal Deviation	$848 \leq f_{dev} \leq 1037$ Hz	P
2.2.16	Modulation Fidelity	$\leq$ 5%	P
2.2.18	Transient Frequency Behavior		
	Time Interval t^1 = 10 ms	$\{\triangle f\} \leq 12.5$ kHz	P
	Time Interval t^2 = 25 ms	$\{\triangle f\} \leq 6.25$ kHz	P
	Time Interval t^3 = 10 ms	$\{\triangle f\} \leq 12.5$ kHz	P

P25-CAB-CAI_TEST_REQ – March 2010, Section 2.1.1.2 – Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Performance		DTR-P25CAP081010-14120902	
Performance – Trunked Receiver Tests NX-5800 (UHF)			
Test Case	**Description**	**Requirement**	**Results**
2.1.4	Reference Sensitivity	$\leq$ -116 dBm	P1
2.1.5	Faded Reference Sensitivity	$\leq$ -108 dBm	P2
2.1.6	Signal Delay Spread Capability	$\geq$ 50 us	P3
2.1.7	Adjacent Channel Rejection	$\geq$ 60 dB	P4
2.1.8	Co-Channel Rejection	$\leq$ 9 dB	P
2.1.9	Spurious Response Rejection	$\geq$ 80 dB	P
2.1.10	Intermodulation Rejection	$\geq$ 75 dB	P
2.1.11	Signal Displacement Bandwidth	$\geq$ 1000 Hz	P

Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C

P25-CAB-CAI_TEST_REQ – March 2010, Section 2.1.1.2 – Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Performance		DTR-P25CAP081010-14120902	
Performance – Trunked Transmitter Tests NX-5800 (UHF)			
Test Case	**Description**	**Requirement**	**Results**
2.2.8	Unwanted Emissions: Adjacent Channel Power Ratio	≥ 67 dB	P
2.2.12	Transmitter Power Attack Time	≤ 50 ms	P
	Encoder Attach Time	≤ 100 ms	P
2.2.14	Transmitter Throughput Delay	≤ 125 ms	P
2.2.15	Frequency Deviation for C4FM		
	High Level Signal Deviation	$2544 \leq f_{dev} \leq 3111$ Hz	P
	Low Level Signal Deviation	$848 \leq f_{dev} \leq 1037$ Hz	P
2.2.16	Modulation Fidelity	$\leq 5\%$	P
2.2.18	Transient Frequency Behavior		
	Time Interval t^1 = 10 ms	$\{\triangle f\} \leq 12.5$ kHz	P
	Time Interval t^2 = 25 ms	$\{\triangle f\} \leq 6.25$ kHz	P
	Time Interval t^3 = 10 ms	$\{\triangle f\} \leq 12.5$ kHz	P

P25-CAB-CAI_TEST_REQ – March 2010, Section 2.1.1.2 – Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Performance		DTR-P25CAP081010-14120902	
Performance – Trunked Transmitter Tests NX-5800 (UHF)			
Test Case	**Description**	**Requirement**	**Results**
2.3.1	Trunking Control Channel Slot Time		
	45 ms Slot		
	Encode Attack Time	2.0 ms $\leq t \leq 11.65$ ms	P
	RF Power Attack Time	0.0 ms $\leq t \leq 11.65$ ms	P
	RF Turn Off Time	≤ 1.57 ms	P
2.3.2	Trunking Request Time	≤ 167.5 ms	P
2.3.3	Trunking Voice Access Time	< 500 ms	P5
2.3.5	Transmit Time to Key on Traffic Channel	≤ 150 ms	P

Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C

Interoperability Test Cases and Results

P25-CAB-CAI_TEST_REQ – March 2010, Section 2.1.3.2 – Project 25 Phase 1 Common Air Interface Trunked Subscriber Unit Interoperability		DTR-P25CAP081010-14082001	DTR-P25CAP081017-1141104K	DTR-P25CAP081011	DTR-P25CAP081011
Kenwood Model Class – NX-5000		EFJ ATLAS	HARRIS VIDA	CODAN	MOTOROLA
Test Case	Description	Result			
2.2.1	**Full Registration**				
2.2.1.4.1	Test Case 1 – Valid Registration				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.1.4.2	Test Case 2 – Denied or Refused Registration				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.1.4.3	Test Case 3 – Unverified Registration				
	Home Configuration	P	P	N5	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.2	**Group Voice Call**				
2.2.2.4.1	Test Case 1 – Group Call Granted				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.2.4.2	Test Case 2 – Group Call Denied				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.2.4.3	Test Case 3 – Group Call Request Queued				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7

Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C

2.2.3	**Unit-to-Unit Voice Call**				
2.2.3.4.1	Test Case 1 – Unit-to-Unit with Target Availability Check				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.3.4.2	Test Case 2 – Unit-to-Unit Call with Target Availability Check Denied by Target				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.3.4.3	Test Case 3 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment After Target Availability Check				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.3.4.4	Test Case 4 – Unit-to-Unit Call Queued with Target Availability Check – Traffic Channel Assignment Before Target Availability Check				
	Home Configuration	NA1	NA1	NA1	NA1
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.3.4.5	Test Case 5 – Unit-to-Unit Call without Target Availability Check				
	Home Configuration	N2	P	N2	N2
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.3.4.6	Test Case 6 – Unit-to-Unit Call Queued without Target Availability Check				
	Home Configuration	N2	P	N2	N2
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.3.4.7	Test Case 7 – Unit-to-Unit Call Denied				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7

2.2.4	**Broadcast Voice Call**				
2.2.4.4.1	Test Case 1 – Broadcast Voice Call				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.5	**Affiliation**				
2.2.5.4.1	Test Case 1 – Radio Permitted to Affiliate with New Group				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.5.4.2	Test Case 2 – Radio Denied Affiliation to New Group				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.6	**Announcement Group Call**				
2.2.6.4.1	Test Case 1 – Collection of Talk Groups Receive Call				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.7	**Emergency Alarm**				
2.2.7.4.1	Test Case 1 – Emergency Alarm				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.8	**Emergency Group Call**				
2.2.8.4.1	Test Case 1 – Emergency Call				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.10	**Encryption**				
2.2.10.4.1	Test Case 1 – Call Privacy for Encrypted Call				
	Home Configuration	P	P	P	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7
2.2.11	**Intra-Location Registration Area Roaming**				
2.2.11.4.1	Test Case 1 – Idle Radio				
	Home Configuration	P	P	N6	P
	Inter-System Roaming Configuration	N1	N3	N4	N7
	Inter-WACN Roaming Configuration	N1	N3	N4	N7

Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C

Model Class: NX-5000 Subscriber	
Product Name, Definitions and Unique ID	**Model Number and Installed Options**
NX-5800 UHF Mobile	FW K 1.11.01 – 1.40.00; Trunking, Encryption

Test Case Results Definitions	
No Test Performed	NT
Test Does Not Apply to the Test Object	N/A
Test Object Meets Requirements	P (Pass)
Test Object Does Not Meet Requirements	F (Fail
Test Object is Not Conclusive	I (Inconclusive)
Comments	
P1: Kenwood subscriber passes Reference Sensitivity specification for C4FM and Simulcast modulations.	
P2: Kenwood subscriber passes Faded Reference Sensitivity specification for C4FM and Simulcast modulations.	
P3: Kenwood subscriber passes Signal Delay Spread Capability specification for C4FM ($\geq$ 50 us) and Simulcast ($\geq$ 80 us) modulations.	
P4: Kenwood subscriber passes Adjacent Channel Rejection specification for C4FM and Simulcast modulations.	
P5: Trunking Voice Access Time will vary dependent on actual system design and implementation.	
N1: EFJohnson infrastructure does not support Inter-System or Inter-WACN roaming.	
N2: Test Cases 2.2.3.4.5 and 2.2.3.4.6 are not supported by EFJohnson, Codan, and Motorola FNE.	
N3: Harris infrastructure does not support Inter-System or Inter-WACN roaming	
N4: Codan infrastructure does not support Inter-System or Inter-WACN roaming	
N5: Codan infrastructure does not support Test Case 3, Section 2.2.1.4.3 Unverified Registration	
N6: Codan infrastructure does not support Intra-Location Registration Area Roaming, Test Case 1, Section 2.2.11.4.1.	
N7: Motorola infrastructure does not support Inter-System or Inter-WACN roaming	
NA1: Test Case 2, Section 2.2.3.4.4 is not applicable to JVCKENWOOD subscribers on EFJ, Harris, Codan and Motorola infrastructures; see results of test case 2.2.3.4.3	

Project 25 Compliance Assessment Program
Summary Test Report
NX-5800 Mobile Radio, UHF
STR-JKWRD-NX5800-0215C